For committee

SB-250

Report for Montana Department
of Fish, Wildlife and Parks

# EXECUTIVE SUMMARY

## BREWER PROPERTY ACQUISITION
## SOCIAL AND ECONOMIC IMPACT ASSESSMENT

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## MAJOR FINDINGS

- No unfavorable changes in taxable valuation or tax revenues to local county governments

- Annual expenditures resulting from DFWP plan estimated at $223,000 versus $40,000 for no purchase alternative

- Total annual economic impact on the state of Montana is $527,500 for the DFWP plan and $99,000 for the no purchase alternative

- Present value of net social benefits associated with the DFWP plan are estimated at $2.3 to $3.2 million compared to the DFWP cost of $1.2 million

- Proposed purchase by DFWP appears to be in the public interest

## ACKNOWLEDGEMENTS

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## EXECUTIVE SUMMARY

The Montana Department of Fish, Wildlife and Parks (DFWP) has proposed to purchase the 34,342 acre Brewer Ranch near Broadus for purposes of protecting and enhancing wildlife habitat. DFWP intends to place a conservation easement on this property to ensure protection of the sagebrush-grassland habitat and to provide open access to hunters. The easement encumbered property will be traded back into private ownership for conservation easements on adjoining property. The likely final project size will be on the order of 90,000 acres. This report provides a social and economic impact assessment of the purchase as required by HB 720 (1989 Montana State Legislature).

On financial grounds and from the viewpoint of DFWP, the cost of the proposed Brewer property purchase is around $1.2 million. There are expected to be no unfavorable changes in taxable valuation or tax revenue to local county governments. This is because agricultural land in Montana is taxed on a production basis. Unless the state legislature changes the tax law for agricultural land to a market value basis, a decline in market value due to a conservation easement will not be reflected in assessed valuation. During the interim period of DFWP ownership, the Montana code (sec.87 -1-603) is unambiguous as to DFWP's obligation to make payments to counties in lieu of taxes.

The likely alternative to the DFWP plan is sale of the Brewer ranch on the open market to a private party. It is conceivable that a new owner-operator of the Brewer property would purchase haying equipment subject to county tax. However, this possibility holds equally for an owner-operator who gains control of the property through an exchange for conservation easements. The dominant use of the ranch will continue to be as a livestock operation; this use is unchanged across management alternatives.

Except for the open access provision, all of the key terms in the conservation easement are oriented to protect habitat: no sodbusting, limit sagebrush control, no commercial development, institution of a rest rotation grazing system and range monitoring. With

regard to habitat protection, the difference between the DFWP plan and the no purchase alternative (except for rest rotation) is one of degree. The easement protects the habitat with virtual certainty for perpetuity. The alternative of no purchase entails a possibility of habitat degradation: sod-busting, sagebrush control, and possibly overgrazing. The likelihood and extent of this degradation is difficult to quantify. A major clear difference in the two alternatives with regard to habitat protection has to do with the rest-rotation system. It appears that this should be regarded as a promising experiment as far as presently quantifiable differences for this specific habitat and species mix.

There are no obvious direct use changes associated with preservation of the wildlife habitat per se, though the implications for indirect benefits are significant, as developed below. The main immediate difference between the DFWP plan and the no purchase alternative has to do with the management of hunting on the land. Following the Widdoss appraisal of the highest and best use of the land, it is assumed that "no purchase" by DFWP will lead to fee hunting on the property. This seems reasonable since land currently leased for hunting adjoins the Brewer property.

Annual hunter expenditures associated with the DFWP plan amount to $223,000 compared to $40,000 for the no purchase alternative (Table A). The majority of these expenditures for both alternatives are by nonresidents, amounting to $211,000 per year and $39,600 per year respectively. The total economic impact on the state of Montana is $527,500 for the DFWP plan and $99,000 under the no purchase alternative. The significantly higher expenditures (and associated economic impacts) for the DFWP plan are somewhat surprising and are explained by two factors. The first is that current use on the Brewer property, which appears to be typical of block management in Region 7, is at a fairly high hunter density of 3.78 hunters per square mile over the big game season.

## TABLE A

**Economic Impact of Hunter Expenditures**
**Under Management Alternatives for Brewer Property**
**(1989 dollars)**

| | DFWP Plan | No Purchase Alternative |
|---|---|---|
| Total hunting expenditure on Brewer's 34,342 acres | 87,196 | 15,743 |
| Total hunting expenditure on final easement area of 88,000 acres | 223,000 | 40,000 |
| Nonresident expenditure on 88,000 acre project | 211,000 | 39,600 |
| Total economic impact on state of Montana | 527,500 | 99,000 |

Note: assumes multiplier of 2.5 used by Taylor and Reilly (1986).

This is almost four times as high as the historic average density (deer and antelope hunters combined) for Region 7 (Table B). By contrast, guided hunting (particularly for exceptional trophy animals) is very land intensive; the largest outfitter in the Broadus area averages .128 guided hunters per square mile. This is about one eighth the regional average and about 25 times as low a density as on block management units. A total of 203 hunters used the Brewer property under the 1988 block management program. At a guided hunter density of .15, this 53 square mile ranch would support 8 guided hunters. In short, the expenditure difference in part reflects the very differing number of hunters under a hunting lease arrangement compared to block management.

The second reason expenditures are surprisingly high for block management is the unexpectedly high share of nonresidents. The historic Region 7 average is for about 20 percent nonresident hunters for both deer and antelope. Permission slip records for Region 7 block management indicate that nonresidents make up 68 percent of total hunters, or over three times the regional average. It appears that nonresident use is concentrated on block management because of information availability and assured access. Unguided nonresident expenditures per hunting trip (averaging about $598 for the property) are about ten times higher than resident expenditures ($72) per trip. Accordingly the nonresident hunter share is an important factor in showing block management related hunting expenditures being much higher than a similar sized area under lease hunting. It may be noted that average expenditure per guided hunter (including landowner exceptions at a ratio of one for every guided hunter) for the property are $1968 per trip.

The influence of both hunter density and relative expenditures per hunter are summarized in Table B. Fee hunting in the Broadus area with low hunter density but high expenditure per hunter generates about $295 in hunter expenditure per square mile

## TABLE B

**Region 7 Deer and Antelope Hunting - Montana**
**Relative Hunter Density and Expenditures**
**Block Management versus Fee Hunting**

| | hunters per sq. mile | sq. mile per hunter | expenditure per hunter (dollars) | expenditure per sq. mile (dollars) |
|---|---|---|---|---|
| Fee hunting | .15 | 6.7 | 1968 | 295 |
| Block management | 3.51 | .28 | 430 | 1509 |
| Region 7 Average | .98 | 1.02 | 185 | 181 |

Notes: Fee hunter density based on outfitters in Broadus area. Block management based on average for 11 landowners in Broadus area. Regional average for hunter density is ten year historical average. Expenditure data derived from Brooks (1988) and Loomis (1988) and is updated to 1989 price levels. Fee hunting expenditure is per guided hunter and includes spending by one landowner exception for every two guided hunters. All expenditures assume one trip per hunter. Expenditure for Region 7 average is based on 73 percent deer hunters and 27 percent antelope hunters and 17.7 percent of deer hunters being nonresidents and 25.3 percent of antelope hunters being nonresidents.

leased. Block management in the Broadus area has lower expenditure per hunter, but supports many more hunters and generates $1509 in hunter expenditure per square mile. The regional average is for intermediate hunter densities, but low expenditure per hunter (because only about 20 percent are nonresident hunters) and hunter expenditures per square mile of $181. In the Broadus area, both fee hunting and block management are therefore more "productive" than the regional average as far as expenditure generated per square mile.

Net social benefits associated with the project are primarily in two categories: indirect values for habitat and wildlife preservation and direct use values. Indirect values refer to the desire of many individuals to protect valuable resources for their children, future generations, possibly their own future use, or just for the satisfaction that something valued is being protected. Indirect values associated with wildlife habitat preservation on the Brewer property are difficult to quantify but may lie in the range of $750,000 to $1.6 million (Table C). The lower end of the range is supported by the fact that The Nature Conservancy (TNC) showed considerable interest in purchasing the site to protect wildlife values. Since TNC funds all such purchases through voluntary donations, this is market evidence of indirect values associated with wildlife and wildlife habitat. The upper end of the estimate is based on economic survey studies that tend to show indirect values for recreational sites that are at least equivalent to the direct recreational use values. Such site-specific studies are the appropriate method for the problem of valuing indirect uses, but were beyond the scope of this particular project.

The present value of net social benefits associated with hunting under the DFWP plan is $1.6 million (Table C). These values are based on detailed economic studies of Montana hunters using methodologies approved by the U.S. Water Resources Council for recreation valuation. The present value of net social benefits for the purchase alternative is $419,000, including benefits to guided hunters and net income to landowners and outfitters. The net value used for guided hunts was adjusted upward by 30 percent (compared to the values used for the DFWP plan) to reflect higher success ratios, strong

**Table C**

**Summary of Annual and Present Net Values**
**Net Social Benefits Associated with**
**Management Alternatives on Total 88,000 Acre Project**
**(1989 dollars)**

| | DFWP Plan | No Purchase Alternative |
|---|---|---|
| **A. Net Social Benefits- Annual** | | |
| Wildlife habitat protection | 49,000 to 103,000 | none |
| Hunting use | 103,000 | 27,000 |
| Total | 152,000 to 206,000 | 27,000 |
| **B. Net Social Benefits - Present Value** | | |
| Wildlife habitat Protection | 750,000 to 1,588,000 | none |
| Hunting use | 1,588,000 | 419,000 |
| Total | 2,338,000 to 3,176,000 | 419,000 |

Notes: Present value derived based on the annual benefits into perpetuity and with a capitalization rate of .065 based on Widdoss (1988). Considerable uncertainty is associated with the wildlife habitat protection values, as indicated by the range of values.

preferences for hunting, and typically higher income associated with this group of hunters.

Taken together, the value of wildlife habitat protection and open access hunting suggest total net social benefits in the $2.3 to $3.2 million range (Table C). Since the cost to DFWP is around $1.2 million, these estimates indicate a favorable benefit/cost ratio for the proposed purchase. Given that there are negligible negative impacts on the local community, this project appears to be in the public interest.

From a distributive standpoint, it was found that the major beneficiaries of the proposed project are likely to be nonresident hunters. This may be viewed as an equitable arrangement in that most of the funds in the DFWP habitat acquisition budget come from increased nonresident license fees. Of the total approximately 6000 hunters using block management in this region in 1988, about 68 percent were nonresidents.

Much of the controversy related to the Brewer property acquisition seemed to have little to do with the kind of factual issues summarized above. Many individuals seemed to base their views of the issue on political principles or views of what is right. One principle often expressed was that individuals (including Bud Brewer) have "the right to sell to whoever they want". The opposing principle was that "the government shouldn't be buying up private land". There is little an economist can contribute to a discussion on this level, as the issues are more in the judicial or ethical realm.

The considerable controversy concerning the Brewer property also seems to reflect public concern with a more tractable but still complex general problem - that of managing hunting opportunities in Eastern Montana. Many seem to view the situation as one of inevitable conflict between fee hunting and open access. However, from the standpoint of economic theory, it appears that block management and fee hunting may be complementary approaches. The implication of this perspective for the allocation of hunting opportunities in Region 7 can be briefly outlined.

A fundamental economic problem arises when game is publicly owned (and managed) while land is private. This disparity in property rights leads to a situation where landowners are not compensated for costs they bear related to policing trespass, property damage and the general costs of dealing with hunters. When hunting pressure is very high, as it has occasionally been in Region 7 as a whole, the costs to the landowner may outweigh any benefits such as reduced game damage or the satisfaction of positive and long-standing landowner sportsmen relationships. Additionally, the landowner has no financial incentive to improve or protect wildlife habitat.

Both block management and fee hunting compensate the landowner. They differ in that block management typically compensates the landowner through a personal services contract for managing the hunters (policing trespass and giving permission and information). The hunting lease generally places responsibility for dealing with hunters on the outfitter, and more or less removes the landowner from contact with sportsmen. Additionally, the compensation under lease hunting is essentially for the right of access. However, the biggest difference between the two systems probably has to do with the hunting experience. Guided hunters have a higher probability of bagging trophy animals, are catered to in the field, experience much lower congestion, and are in an arms-length market relationship with the land owner. From the standpoint of economic theory, what is being observed is product differentiation, with block management and fee hunting serving somewhat different clients. It appears that more or less separate markets for at least two distinctly different types of hunts have emerged. If this is true, it is likely that the total social benefits associated with hunting in Region 7 would be maximized by a mix of the two management approaches.

This perspective raises the interesting allocative question of the optimal share of Region 7 land that should be in fee hunting versus block management. (Posing the question in this way is of course a simplification in that a third type of hunting is going on as well and that is the traditional situation where individuals hunt on private land with

permission of the owner and often in a relatively uncongested setting. It also implies that currently closed land and publicly available lands are assumed to be a' fixed constraint to the problem.) Although it is beyond the scope of this study to investigate this problem in detail, one can look at the statistics for the Brewer property to indicate what is happening at the margin. It appears that the demand for block management is so high that the expenditure and associated net social benefits far outweigh those for fee hunting on a typical property. This implies that it is socially beneficial to expand the block management program.

It is likely that the total demand for block management type hunting in Region 7 is more as less stable, being dominated by the spatial location of population centers vis-a-vis SE Montana and by the economics of travel and hunter participation rates. Accordingly, if more lands were included in the program, hunter densities would drop. This would also tend to raise the overall quality of the experience and perhaps tend to disperse nonresidents more broadly and entice greater resident hunter participation. Since hunter density and nonresident share are the key factors that effect the economic comparison of block management and fee hunting, eventually a breakeven point would be reached where the social returns to each were equal. At this point an approximately optimal allocation would hold. For example, with the average hunter expenditure levels used in this report, suppose that the nonresident share of hunters using block management declined from 68 percent to the regional average of around 20 percent. At this nonresiderit" share, hunter expenditures are equal per square mile (or for a given ranch) ifuse density on block management drops to 1.6 hunter per square mile. It is considerably beyond the scope of this report to identify the amount of block management land needed for this situation to occur.

The points noted in this executive summary are developed in greater detail in the main report. A table of contents for the latter is provided in Appendix A.

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